

A DG finite element method for parabolic equations

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The time dependent heat equation will be considered as a model problem. This equation will be discretized in the space time cylinder by using a discontinuous Galerkin approach. In particular for spatial domains $\Omega \subset \mathbb{R}^3$ we therefore have to decompose the space time cylinder in \mathbb{R}^4 . For this, a method of decomposing a four dimensional object into pentatopes will be presented. Numerical examples will be given, which show the expected convergence of this approach.